WHAT IS CLAIMED IS:

1. A method for identifying a compound that modulates activity of a KIF18A or KLP67A polypeptide, the method comprising:

a) obtaining a test cell containing a KIF18A or KLP67A polypeptide and a control cell containing a KIF18A or KLP67A polypeptide;

b) incubating the test cell with a test compound; and

c) detecting an altered localization of the KIF18A or KLP67A polypeptide in the test cell as compared to the KIF18A or KLP67 polypeptide in the control cell,

wherein an altered localization indicates that the test compound modulates activity of the KIF18A or KLP67A polypeptide.

2. The method of claim 1, wherein the KIF18A polypeptide has the sequence of GenBank Accession Number AL136819 (SEQ ID NO:2).

3. The method of claim 1, wherein the KLP67A polypeptide has the sequence of GenBank Accession Number NM_079268 (SEQ ID NO:3).

4. The method of claim 1, wherein the test compound is an antisense nucleic acid molecule, a small inhibitory RNA (siRNA), a ribozyme, a triple helix molecule, an antibody, a polypeptide, a peptoid, a polypeptide mimetic, a small inorganic molecule, or a small non-nucleic acid organic molecule.

5. The method of claim 1, wherein the polypeptide is localized to a region of a dividing cell other than the distal ends of astral microtubules in the presence of the test compound.

6. The method of claim 1, wherein the polypeptide is localized using immunocytochemistry.

7. The method of claim 1, wherein the polypeptide is fused to a reporter molecule.

8. The method of claim 7, wherein the reporter molecule is green fluorescent protein (GFP), β-glucuronidase (GUS), luciferase, chloramphenicol transacetylase (CAT), horseradish peroxidase (HRP), or β-galactosidase.

9. A method for identifying a compound that modulates expression of a *KIF18A* or *KLP67A* DNA sequence, the method comprising:

a) providing a test cell comprising a nucleic acid that expresses the KIF18A or KLP67A polypeptide and a control cell containing a nucleic acid that expresses the KIF18A or KLP67A polypeptide;

b) incubating the test cell with a test compound; and

c) detecting an increase or decrease in a *KIF18A* or *KLP67A* RNA or polypeptide population as compared to a *KIF18A* or *KLP67A* RNA or polypeptide population in a control cell,

wherein an increase or decrease in the *KIF18A* or *KLP67A* RNA population indicates that expression of the *KIF18A* or *KLP67A* DNA is modulated by the test compound.

10. The method of claim 9, wherein the increase or decrease in the RNA population is assayed by Northern blot, RT-PCR, or microarray analysis.

11. The method of claim 9, wherein the increase or decrease in the KIF18A or KLP67A polypeptide population is assayed by Western blot or ELISA.

12. A method for assaying for modulation of activity of a KIF18A polypeptide in a test cell, the method comprising:

(a) providing a dividing test cell containing a *KIF18A* polypeptide and a dividing control cell containing a *KIF18A* polypeptide;

(b) measuring spindle length in the dividing test cell and the dividing control cell; and

(c) determining either (i) the amount of KIF18A polypeptide in the test cell and the control cell, or (ii) the location of KIF18A polypeptide in the test cell and the control cell, or both (i) and (ii);

wherein the occurrence of a longer or shorter spindle in the test cell as compared to the control cell, and either (i) the amount of KIF18A polypeptide is different than the amount of KIF18A polypeptide in the control cell, or (ii) the location of KIF18A polypeptide in the test cell is different than the location of KIF18A polypeptide in the control cell, or both (i) and (ii), is an indication that the activity of the KIF18A polypeptide in the test cell is different than the activity of a KIF18A polypeptide in the control cell.

13. The method of claim 12, wherein the spindle length of the test cell is increased or decreased by 45-100%, as compared to the spindle length of the control cell.

14. The method of claim 12, further comprising determining whether a *KIF18A* polypeptide from the test cell contains an altered amino acid compared to a wild type KIF18A polypeptide.

15. A method for assaying for modulation of activity of a KIF18A polypeptide, the method comprising:

(a) providing a dividing test cell containing a KIF18A polypeptide and a dividing control cell containing a KIF18A polypeptide;

(b) measuring the angle between two ectopically localized prophase centrosomes in the dividing test cell; and

(c) determining either (i) the amount of KIF18A polypeptide in the test cell and the control cell, or (ii) the location of KIF18A polypeptide in the test cell and in the control cell, or both (i) and (ii);

wherein the occurrence of a 1-155° angle between the two prophase centrosomes in the dividing cell, and either (i) the amount of KIF18A polypeptide is different than the amount of KIF18A polypeptide in the control cell, or (ii) the location of KIF18A polypeptide in the test cell is different than the location of KIF18A polypeptide in the control cell, or both (i) and (ii), indicates that the activity of the KIF18A polypeptide in the test cell is different than the activity of a KIF18A polypeptide in the control cell.

16. The method of claim 15, wherein the angle between the two prophase centrosomes in the dividing test cell ranges from 130-154°.

17. The method of claim 15, wherein the centrosomes are localized by using an anti-centrosomin antibody and immunocytochemistry.

18. The method of claim 15, further comprising determining whether a *KIF18A* polypeptide from the test cell contains an altered amino acid compared to a wild type KIF18A polypeptide.

19. A method for assaying for modulation of activity of a KIF18A polypeptide, the method comprising:

a) providing a dividing test cell containing a KIF18A polypeptide and a dividing control cell containing a KIF18A polypeptide;

(b) determining the shape of a spindle or astral microtubule in the dividing test cell and the dividing control cell; and

(c) determining either (i) the amount of KIF18A polypeptide in the test cell and the control cell, or (ii) the location of KIF18A polypeptide in the test cell and the control cell, or both (i) and (ii);

wherein the occurrence of a spindle or astral microtubule in the dividing test cell that is shaped differently than a spindle or astral microtubule in the control test cell, and either (i) the amount of KIF18A polypeptide is different than the amount of KIF18A polypeptide in the control cell, or (ii) the location of KIF18A polypeptide in the test cell is different than the location of KIF18A polypeptide in the control cell, or both (i) and (ii), indicates that the activity of the KIF18A polypeptide in the test cell is different than the activity of a KIF18A polypeptide in the control cell.

20. The method of claim 19, wherein the spindle or astral microtubule in the dividing test cell is banana-shaped.

21. The method of claim 19, wherein the spindle or astral microtubule is detected using an anti-α tubulin antibody and immunocytochemistry.

22. The method of claim 19, further comprising determining whether a *KIF18A* polypeptide from the test cell contains an altered amino acid compared to a wild type KIF18A polypeptide.

23. A method for assaying for modulation of expression of a *KIF18A* nucleic acid, the method comprising:

a) providing a test cell containing a *KIF18A* nucleic acid and a control cell containing a KIF18A nucleic acid; and

(b) determining a level of an RNA encoded by the *KIF18A* nucleic acid in the test cell and in the control cell,

wherein an increase or decrease in the level of RNA encoded by the *KIF18A* nucleic acid in the test cell compared to the level of RNA encoded by the *KIF18A* nucleic acid in the control cell indicates that the expression of a *KIF18A* nucleic acid is modulated.

24. The method of claim 23, wherein the level of RNA is monitored by Northern blot, RT-PCR, or microarray analysis.

25. The method of claim 23, further comprising determining whether the *KIF18A* nucleic acid from the test cell contains a mutation.

26. A method for assaying for modulation of expression of a *KIF18A* nucleic acid, the method comprising:

a) providing a test cell containing a *KIF18A* nucleic acid and a control cell containing a *KIF18A* nucleic acid; and

b) determining a level of a KIF18A polypeptide encoded by the *KIF18A* nucleic acid in the test cell and in the control cell,

wherein an increase or decrease in the level of KIF18A polypeptide encoded by the *KIF18A* nucleic acid in the test cell compared to the level of polypeptide encoded by the

KIF18A nucleic acid in the control cell indicates that expression of the *KIF18A* nucleic acid is modulated.

27. The method of claim 26, wherein the level of KIF18A polypeptide in the test cell and in the control cell is determined by Western blot or ELISA.

28. The method of claim 26, further comprising determining whether the *KIF18A* nucleic acid in the test cell contains a mutation.

29. A method for modulating the activity of a KIF18A polypeptide or a KLP67A polypeptide, the method comprising:

a) contacting a *KIF18A* nucleic acid or *KLP67A* nucleic acid with a modulating agent in a concentration sufficient to modulate transcription of the nucleic acid;

b) contacting a cell expressing a *KIF18A* nucleic acid or *KLP67A* nucleic acid with a modulating agent in a concentration sufficient to modulate translation from an RNA encoded by the nucleic acid; or

c) contacting a cell expressing the KIF18A polypeptide or KLP67A polypeptide with a compound that binds to the polypeptide in a concentration sufficient to modulate the activity of the polypeptide.

30. The method of claim 29, wherein the modulating agent is an antisense nucleic acid molecule, a small inhibitory RNA (siRNA), a ribozyme, a triple helix molecule, an antibody, a small inorganic molecule, or a small non-nucleic acid organic molecule.

31. A composition comprising a compound that modulates the activity of a KIF18A polypeptide, wherein the composition comprises an antisense nucleic acid molecule, an siRNA, a ribozyme, a triple helix molecule, an antibody, a small inorganic molecule, or a small non-nucleic acid organic molecule.

32. The composition of claim 31, wherein the antisense nucleic acid molecule is complementary to a segment of contiguous nucleotides of a KIF18A nucleotide sequence ranging from a length of 10 to 1000 nucleotides.

33. The composition of claim 31, wherein the siRNA comprises the sequence of SEQ ID NO:14, or a fragment thereof.

34. The composition of claim 31, wherein the antibody or small molecule specifically binds to a KIF18A polypeptide, or a fragment or an allelic variant thereof.

35. A kit comprising the composition of claim 31 and instructions to treat a disorder mediated by or associated with a KIF18A polypeptide.

36. The kit of claim 35, wherein the antibody or small molecule specifically binds to a KIF18A polypeptide, or a fragment or variant thereof.

37. The kit of claim 35, wherein the antisense nucleic acid molecule is complementary to a segment of contiguous nucleotides of a KIF18A nucleotide sequence ranging from a length of 10 to 1000 nucleotides.

38. The kit of claim 35, wherein the siRNA is substantially identical to a segment of contiguous nucleotides of a KIF18A nucleotide sequence ranging from a length of 10 to 1000 nucleotides.

39. The kit of claim 35, wherein the disorder is a proliferative disorder or an autoimmune disorder.

40. The kit of claim 39, wherein the proliferative disorder is a cancer or psoriasis.

41. The kit of claim 39, wherein the autoimmune disorder is rheumatoid arthritis.